CLAIMS

1. A method of machining a work in a numerically controlled lathe having a rotatable spindle, a first tool rest configured to move back and forth relative to the spindle in a spindle axis line direction and in a direction crossing a spindle axis line, and a second tool rest configured to move back and forth relative to the spindle in the spindle axis line direction, the method being characterized by comprising the steps of:

judging which of the first tool rest and the second tool rest tools used in current machining are installed on;

judging whether tools used in next machining are the tools installed on the first tool rest or the tools installed on the second tool rest;

judging whether interference is caused between the first tool rest and the second tool rest during movement when, as to the first tool rest and the second tool rest, the tool rest on which the tools used in the current machining are installed is different from the tool rest on which the tools used in the next machining are installed;

obtaining, for both the first tool rest and the second tool rest, interference boundary positions at which the first tool rest and the second tool rest are in proximity but do not interfere with each other, on the movement paths of the respective tool rests, when interference is caused between the first tool rest and the second tool rest;

moving one tool rest toward the standby position

at a fast feed speed when the tool rest on which the tools used in the current machining are installed is different from the tool rest on which the tools used in the next machining are installed;

obtaining a feed speed for the other tool rest so that the other tool rest on which the tools used in the next machining are installed reaches the interference boundary position within the same time as the time in which the one tool rest reaches the interference boundary position, and moving the other tool rest toward the interference boundary position at the obtained feed speed; and

increasing the speed of the other tool rest to a fast feed speed when the other tool rest passes the interference boundary position so as to move the tools used in the next machining to a machining start position in the case where the feed speed obtained for the other tool rest is less than the fast feed speed.

2. The method of machining the work in the numerically controlled lathe according to claim 1, characterized in that when a plurality of tools is installed on the second tool rest, the plurality of tools is arranged in the same direction as the movement direction of the first tool rest crossing the spindle axis line, and the plurality of tools is moved in the same direction as the movement direction of the first tool rest to index a predetermined tool to the machining position.

3. The method of machining the work in the

numerically controlled lathe according to claim 1 or 2, characterized in that a comparison is made between time in which the one tool rest reaches the interference boundary position when the one tool rest is moved at the fast feed speed and time in which the other tool rest reaches the interference boundary position when the other tool rest is moved at the fast feed speed; and when the other tool rest reaches the interference boundary position in a shorter time than the one tool rest, the feed speed of the other tool rest is obtained from the distance between the standby position and the interference boundary position of the other tool rest and from the time in which the one tool rest reaches the interference boundary position.

4. The method of machining the work in the numerically controlled lathe according to any one of claims 1 to 3, characterized in that a first interference check area is formed for the first tool rest from a predetermined part of the first tool rest which can cause interference with the second tool rest and from the position of the cutting edges of the tools installed on the first tool rest and indexed to the machining position; and

a judgment is made as to whether or not interference is caused between the first interference check area and the second tool rest and as to a position where the interference is caused.

5. The method of machining the work in the numerically controlled lathe according to claim 4, characterized in that when the cutting edges of the tools

installed on the second tool rest are aligned at the same position, a second interference check area is formed for the second tool rest from the position of the cutting edges of the tools and the diameter of the tools.

6. The method of machining the work in the numerically controlled lathe according to claim 4, characterized in that when the tools installed on the second tool rest are tools of different lengths and the position of the cutting edges thereof is irregular, the second interference check areas are formed for the respective tools from the position of the cutting edges thereof, the diameter of the tools, and the positions at which the tools are installed on the second tool rest, and judgments are made as to whether or not interference is caused and as to a position where the interference is caused, from the positional relation between each of the interference check areas and the first interference check area.